CASE REPORT

Arthroscopic Ablation of Osteoid Osteoma in the Wrist

Reza Shahryar Kamrani, MD; Leyla Farhadi, MD; Sahra Emamzadehfard, MD

Research performed at Milad Hospital, Tehran, Iran

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Abstract

Osteoid osteoma is a benign bone tumor that rarely involves joints. Although there are several reports of arthroscopic osteoid osteoma excisions, to our knowledge, there are no reports of this type of treatment for osteoid osteoma in carpal bones. We report two cases of arthroscopic (a person who had a pain in the left wrist and the other one with carpal tunnel syndrome) with excision of osteoid osteoma in the carpal bones. We think arthroscopic excision is the best choice for treatment as long as the tumor is accessible for arthroscopic surgery, when osteoid osteoma has classic clinical and imaging findings and is near an articular surface. However, when the tumor is far from the joint surfaces, when we need pathologic confirmation or when the tumor is easily accessible using a non-articular approach, arthroscopic excision may not be the most appropriate technique.

Keywords: Arthroscopy, Carpal bones, Osteoid osteoma

Introduction

Osteoid osteoma is a benign bone tumor that is rare in carpal bones. Arthroscopic excision of an osteoid osteoma has been previously performed in many joints (1-3). However, there are no previous reports of using arthroscopic excision to treat an osteoid osteoma in the wrist. In this survey, we report on two cases of arthroscopic treatment of an osteoid osteoma in the carpus. Both cases were asymptomatic at their 18 and 11 month follow ups.

Case 1

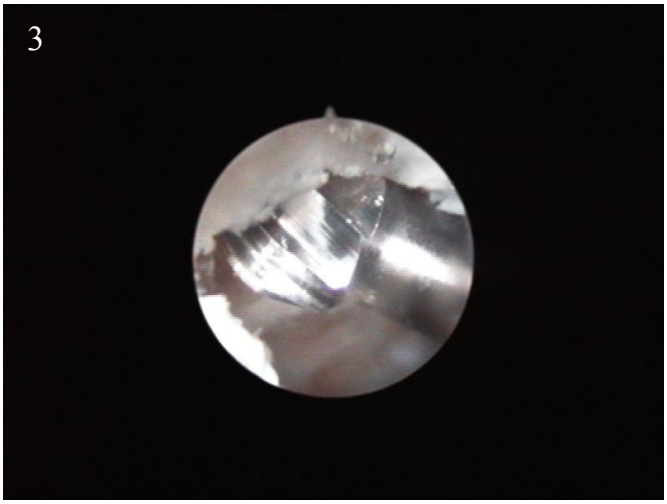
A 45-year-old right-handed female was referred to our clinic for treatment of carpal tunnel syndrome. However, her symptoms were atypical for carpal tunnel syndrome, because she had tenderness in the dorsal surface of her wrist and a dramatic response to aspirin. Radiographic examination demonstrated the presence of a classic lucent lesion with a nidus on the ulnar side of the lunate bone. The nidus was located near the articular surface (Figure 1-1). CT scans confirmed the diagnosis of an osteoid osteoma (Figure 1-2). The operation was performed on December 2009. After standard diagnostic arthroscopy from portal 3-4 and limited synovectomy from portal 4-5 with a serrated shaver, the nidus was arthroscopically excised by a burr under direct vision from portal 4-5 (Figure1-3). The excision site was confirmed by C-arm control. A shaver sheath was used for debris irrigation from the 6R portal. We did not use a bone graft.

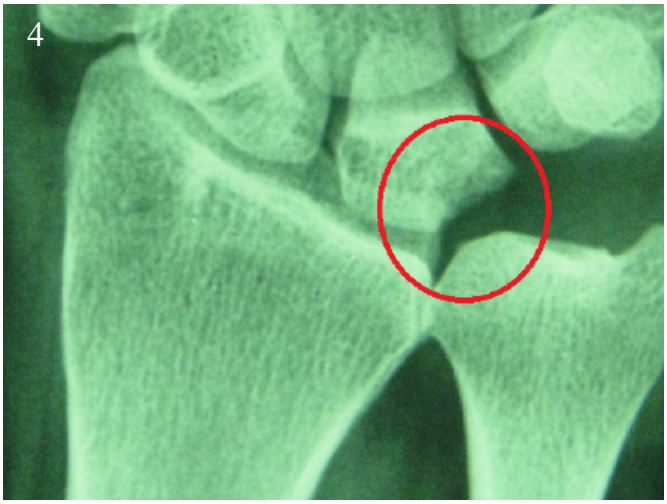
Her pain resolved immediately after the operation. At the 18 m follow up, her hand grip force was 28 kg in the right hand and 33 kg in the left and her pinch force was 7 kg in both hands. Hence, she had full range of wrist motion. The only complaint was pain in the dorsal wrist surface with deep palpation. In radiography, there was no sign of early osteoarthritis (Figure 1-4).

Case 2

A 25-year-old right-handed female was referred to our clinic due to pain in the left wrist that had started 1.5 years ago, which she had been treating with aspirin for the last 6 m. She had pain in the radial side of the wrist that increased at night. Radiographic examination showed a lucent lesion in the distal pole of the scaphoid (Figure 2-1) and a CT scan confirmed the diagnosis (Figure 2-2). We operated on this patient in October 2010. We used a scope in the ulnar mid-carpal portal, and after limited synovectomy

Corresponding Author : Leyla Farhadi, Milad Hospital , Tehran, Iran, Email: drlfarhadi@yahoo.com





Figures 1-1 to 1-4. Wrist X-ray, arthroscopic photo and CT-scans of case 1.

from the radial mid-carpal portal, the nidus was excised by a burr under direct vision and C-arm control (Figure 2-3). We did not use a bone graft.

The patient's pain resolved after the operation. Six months after the operation, a CT-scan showed that half of the defect was filled (Figure 2-4). The patient did not complain of any pain at her 11 month follow-up and both wrists had the same range of motion. The hand grip force was 36 kg in the right and 30 kg in the left hand. The pinch power was 14 kg in the left and 10 kg in the right hand. . However, there was tenderness in the radial side of the left wrist and pain during full force pinching.

Discussion

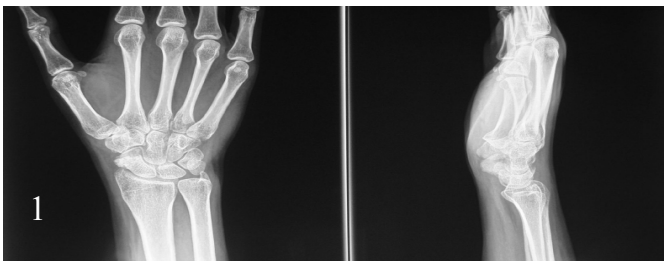
Osteoid osteoma is a benign bone tumor with typical signs and symptoms that make it easy to diagnosis. These include night pain, dramatic responses to aspirin and typical radiologic findings and it rarely involves joints.

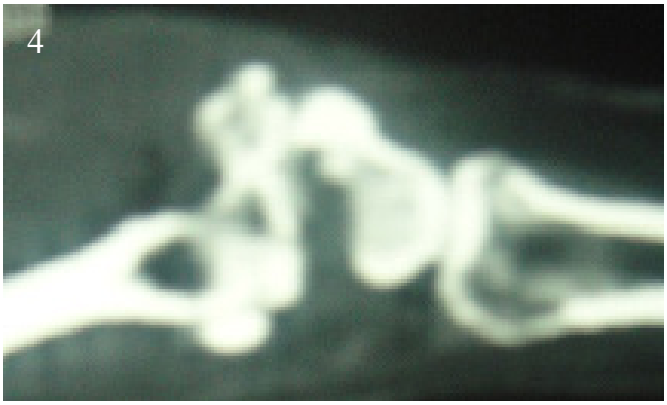
In the wrist, it most often causes increasing pain, joint tenderness and swelling. Due to the atypical presentation in the wrist, it can be initially difficult to diagnose. However, it can be diagnosed by clinical and radiographic findings (4).

Nidus excision is the treatment of choice for osteoid osteomata, and it is usually performed in open surgery. Radiofrequency ablation has been another common treatment, with good outcomes, although its use in the carpus is controversial (5). The most important limitation for treatment is the risk of neurovascular and soft tissue damage in the wrist. In our opinion, unpredictable damage to the cartilage due to heat is another important limitation, especially when the nidus is near the articular surface.

Arthroscopic nidus resection efficacy was first described in the knee and has now been confirmed in many case reports (1-3). However, we were unable to find cases of arthroscopic nidus resection in the wrist, presumably because of the rarity of osteoid osteoma in that region. We had 2 patients with carpal involvement who were good candidates for arthroscopic excision because their nidi were near articular surfaces and there was a low risk of joint damage.

Although the tumor location may be found arthroscopically, we preferred to confirm the location of a nidus using a C-arm control, as described by other groups (3). After determining the position, we excised the nidus using a sheath less burr. The resultant debris was washed out of the joint





Figures 2-1 to 2-4. Wrist X-rays, intraoperative X-ray and CT-scans of case 2.

using an irrigation portal. Although we were not able to obtain any pathologic specimen, which is a potential disadvantage of this technique, we believe that clinical and radiographic findings are sufficient for diagnosis; similar to what is used in the radiofrequency method.

We believe that when osteoid osteoma has classic clinical and imaging findings and is near an articular surface, arthroscopic excision is the best choice for treatment. However, when the tumor is far from the joint surfaces, when we need pathologic confirmation or when the tumor is easily accessible using a non-articular approach, arthroscopic excision may not be the most appropriate technique.

Reza Shahryar Kamrani MD
Shariati Hospital, Tehran University of Medical Sciences, Tehran, Iran

Leyla Farhadi MD
Milad Hospital, Tehran, Iran

Sahra Emamzadehfard MD
Shariati Hospital
Tehran University of Medical Sciences, Tehran, Iran

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